Our objectives are genuine and simple

Packaging
Ecodesign guide

BIC is committed to packaging ecodesign, light and practical, maximum function with minimum environmental impact

We will pursue our commitment

Important Reminder

Packaging must not contain more than 100 ppm of heavy metals.
European packaging must be designed with maximum reduction of the quantity of materials; it must not contain substances dangerous for the environment and must be recyclable, incinerable with energy recovery, or biodegradable.

European regulations

European directive 94/62/EC specifies requirements for packaging and packaging waste. It was complemented by directive 2004/12/EC. **All packaging** marketed in the European Union is subject to these regulations: industrial, commercial, office and household waste, etc.

• Heavy metal content **must not exceed 100 ppm**: mercury, lead, cadmium and hexavalent chromium.

• Packaging shall be manufactured in such a way as to **limit its volume and its weight** to the minimum necessary to ensure the required level of safety, hygiene and performance, for both the product and the consumer.

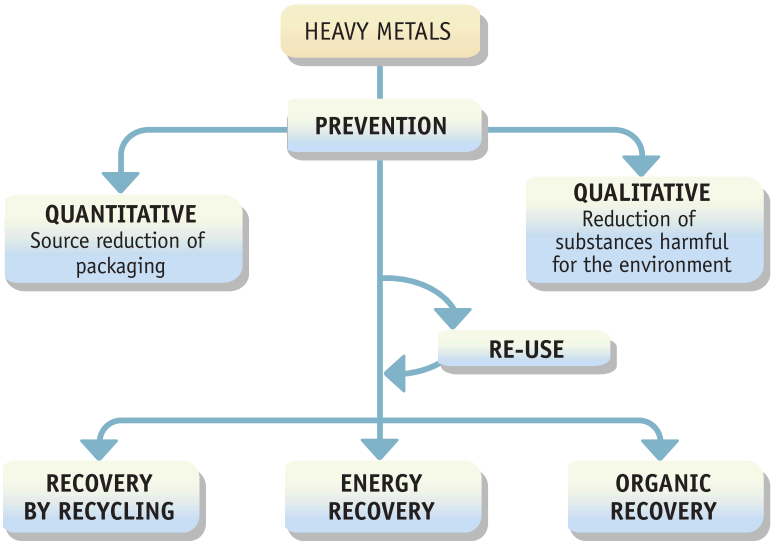
• Packaging shall be designed, manufactured and marketed in such a way as to enable its reuse or **recovery**. Packaging shall be designed to minimize any environmental effects resulting from the disposal of the packaging waste or any residuals from packaging waste management operations.

• The packaging shall be designed and manufactured with special attention given to **minimizing the quantity and concentration of any environmentally harmful substances in the packaging. This effort must include consideration of any** dangerous substances that may be present in emissions, ash or leachate resulting from the incineration, recycling, disposal or other waste management operations.

6 European standards that lead to a presumption of compliance with the directive:

EN 13427 :	**use of European Standards in the field of packaging**
EN 13428 :	**source reduction**
EN 13429 :	**reuse**
EN 13430 :	**recoverable by material recycling**
EN 13431 :	**recoverable in the form of energy recovery**
EN 13432 :	**recoverable through composting and biodegradation**

European essential requirements



Regulations in the United States

The "Model Toxics in Packaging Legislation" was developed by the Source Reduction Council of CONEG (Coalition of Northeastern Governors) in 1989. This legislation was designed to reduce the use and presence of four heavy metals in packaging and packaging components.

In states where this model legislation has been adopted (19 states at present), it:

- Prohibits the **intentional** introduction of lead, cadmium, mercury, and hexavalent chromium in packaging and packaging components; and
- Limits the **incidental** sum of these four metals to 100 parts per million in packaging and packaging components.

Our BIC policy has been defined as the combination of both regulations

Find out more

About European regulations:
http://europa.eu.int/scadplus/leg/en/lvb/l21207.htm

About regulations in the United States: EPA : **http://www.epa.gov/osw/**, Model Toxics in Packaging Legislation : **http://www.toxicsinpackaging.org**

About waste : **http://www.grid.unep.ch/waste/**

Ecodesign of packaging means:

- **integrating the consideration** of the environmental effects of a packaging system **into the design phase:** including the primary packaging (pouch, blister, box), secondary packaging (inner chip, outer case) and tertiary packaging (pallet, stretch wrap),
- **minimizing any environmental effects throughout the life cycle of the packaging,**
- **compliance** with regulatory requirements.

- Limit the use of non-environmentally friendly materials (solvent inks & coatings)
- Reduce the effects of manufacturing on the environment (energy, effluents, manufacturing waste)
- Plan and design for Just-In-Time packaging manufacturing to minimize obsolescence and reduce resulting waste

- Optimize pallet cube efficiency
- Optimize the supply chain routing and management (no unnecessary transport, etc.)
- Facilitate alternate shipping modes, when more environmentally-friendly (rail, river)

- Ecodesign the point-of-purchase displays to minimize material weight and volume
- Design displays for ease of recycling

- Communicate the capability to reuse, recycle or biodegrade on all levels of packaging and displays.
- Facilitate selective sorting for recovery: recycling, incineration with energy recovery or biodegradation

- Reduce material weight and volume to a minimum
- Specify materials compliant with regulatory requirements
- Specify materials suitable for reuse and recycling
- Specify materials with recycled content, when practical.
- Consider the likely modes of disposition at the end of the life cycle (incineration, recycling, landfill, reuse)

III MATERIAL & SOURCE REDUCTION - DOING MORE WITH LESS

As a company responsible for the distribution of (primary, secondary and tertiary) packaging, BIC must be able to demonstrate that the weight and the volume of each package has been reduced to a minimum, following the critical point method and the main principles indicated below.

Critical point method

Analysis of the packaging must allow identification of the limiting factors that prevent any further reduction of the weight and/or the volume of the packaging material, without affecting its performance. These limiting factors are called "critical points." Material and source reduction must continue until no critical point has been reached.

Main principles

1 Package Design: Maximize the product to packaging ratio

- Optimize the package shape and size (smaller, lighter, simpler)
- Eliminate excessive packaging
- Minimize excess space
- Reuse packaging elements (cardboard boxes, pallets)

2 Material Reduction: Reduce volume and weight. Choose the lightest materials possible.

- Set up a technology watch to exploit innovative materials
- Increase supplier awareness of BIC requirements for ecodesign of packaging

3 Supply Chain Efficiency: Maximize the quantity of products per shipment and identify the best means of transportation

- Maximize the pallet cube efficiency - maximum number of products transported per unit volume
- Optimize distribution routing (consolidation of orders, plan efficient routes, direct shipments, eliminate empty space on vehicles)
- Give priority to alternative modes of transport other than road for fuel efficiency: rail and river

4 Environmental Impact Reduction: Reduce the environmental effects of the manufacturing process

- Minimize the number of manufacturing stages
- Control and minimize emissions, effluents and energy consumption
- Give priority to renewable energy or energy-efficient manufacturing technology

BIC® Examples:

In 2003, BIC Rasoirs **France** modified the packaging system for CLASSIC/ BIC® 1 shaver pouches.

- First step: eliminated outer carton and placed inner cartons directly on the pallet.
- Second step: switched from one large 2 meter high pallet to two stackable 1.2 meter pallets: the loads are therefore more optimized. Pallets are reused to achieve environmental benefit.

Result: 6,400 pouches are now placed in each pallet location in a truck or container instead of just 5,600 previously; the weight of cardboard per pouch is 5 g compared to 8.72 g previously.

In the **USA**, BIC has redesigned its wholesale club packages to reduce cost and increase manufacturing efficiencies. The primary package for Wite-Out® brand correction tape was changed from a mock-clam blister package to a plastic box. The package size was reduced from 11.25" x 11.25" (285mm x 285mm) to 5.50" x 6.00" (140mm x 152mm) and the package weight decreased from .34 to .31 pounds (.15 to .14 kgs).
The primary package reduction also had a positive impact on the secondary and tertiary packaging. BIC was able to reduce the case size while increasing the number of packages per case from 10 to 20. The number of cases per pallet also increased from 27 to 96 cases allowing an extra 1,650 packages per pallet.

In **Brazil**, the standardization from 10 to 3 blister card sizes has led to cost reduction, as well as a more than 10% reduction in material usage (flat cardboard).

IV CHOOSING AND FACILITATING A MODE OF RECOVERY

All BIC® packaging must allow recovery by one of the following three methods:

- Reuse/Recycling
- Incineration with energy recovery
- Composting or biodegradation

Please Note:

The consumer packaging (flexible packaging) of BIC® products is generally small in size, making it unsuitable for selective sorting and recycling in most countries.
Not all countries in which BIC® products are found currently have recycling systems. When recycling isn't practical, the favored means of recovery of (primary) consumer packaging is currently incineration with energy recovery.

Main principles

5 Choose a mode of recovery for each type of packaging

- Reuse: pallets, returnable containers
- Recycling: boxes, plastic packaging, outer cases, etc.-
- Incineration with energy recovery: flexible packaging, blister card packaging, wooden pallets, etc.

6 Incineration with energy recovery Standard EN 13431

- Use environmentally-friendly materials that burn cleanly and avoid toxic emissions
- Exclude materials which are impossible to incinerate

7 Recycling (cardboard primary packaging, secondary and tertiary packaging) Standard EN 13430

- Check the recyclability of all the components and their compatibilities with each other (glue, inks)
- Facilitate selective sorting and separation of components (eliminate or limit the use of staples)
- Minimize the number of different materials
- Inform consumers that the packaging is recyclable and communicate the feasibility of sorting for recycling

8 Composting, biodegradationStandard EN 13432

- Check the biodegradability of the package components: more than 90 % biodegradation in 180 days (standards ISO14855 and ISO FDIS 16929)
- Check the "non-ecotoxicity" of the constituents for terrestrial and aquatic organisms

BIC® Examples:

Since 2001, BIC Boulogne-sur-Mer **France** has progressively replaced PVC with cardboard for the manufacturing of the primary packaging for coloring products. Around 90% of these packs are made of recycled cardboard compared to 10% made of PVC.
In countries in which selective sorting is practiced, the design of this packaging enables easy sorting by the consumer.

In the **USA**, BIC has replaced some of the PVC boxes with paperboard boxes to reduce cost and increase manufacturing efficiencies. Cardboard is a material that can be recycled and incinerated with energy recovery.

2000	As from 2001
	
	

V CHOICE OF MATERIALS AND REDUCTION OF SUBSTANCES DANGEROUS FOR THE ENVIRONMENT

In both Europe and the United States, it is necessary to obtain certificates of compliance from suppliers for packaging, or for raw materials or constituents destined for the manufacturing of packaging.

These certificates must confirm that the incidental sum of lead, cadmium, mercury, and hexavalent chromium in packaging and packaging components is less than 100 parts per million.

Main principles

9 Obtain certificates of compliance from the suppliers for all packaging constituents (e.g., cardboard, glues, coatings, inks)

- Lead + Cadmium + Mercury + Chromium (VI) < 100 ppm

10 Choose substances less dangerous for the environment in the case of additional constituents

- List of any dangerous substances used in the manufacturing process; glues, inks, coatings, solvents, foil paperboard, etc.

11 Eliminate or limit the use of materials that don't promote recycling or incineration to energy recovery

- Use alternate materials with the same structural and manufacturing performance but that are not harmful for the environment
- Limit the use of environmentally-unfriendly materials to a strict minimum.

12 Promote the use of recycled raw materials

- Recycled plastic
- Recycled cardboard

13 Know the percentage of recycled material in the final packaging

- Know package material weight and percent of recycle content for each packaging component

BIC® Examples:

In the **USA**, blister cards manufactured with solvent based heat seal coating were switched to a water base heat seal coating.
The end result for the environment is less solvent air emissions.

Since 2004, BIC Boulogne-sur-Mer **France** has been using blister shells made of 10% recycled APET (Amorphous Polyethylene Terephtalate). The short-term objective is to increase this figure to 30% recycled content, which in turn promotes a higher demand for recycling virgin materials.

Check-list

Source prevention/reduction (based on standard CEN 13428)	Most important requirement	Critical points
Product protection		
Product manufacturing process		
Logistics		
Presentation and marketing of product		
Acceptance by consumer		
Information for consumer use of product		
Safety		
Legislation		
Other aspects		

Based on the prevention standard CEN 13428, this checklist can be used to qualify each packaging according to the critical point method.

The Main Principles

1	Package Design: Maximize the product to packaging ratio	☐
2	Material Reduction: Reduce volume and weight. Choose the lightest materials.	☐
3	Supply Chain Efficiency: Maximize the quantity of products per shipment and identify the best means of transportation	☐
4	Environmental Impact Reduction: Reduce the environmental effects of the manufacturing process	☐
5	Choose a mode of recovery for each type of packaging	☐
6	Incineration with energy recoveryStandard EN 13431	☐
7	Recycling (cardboard primary packaging, secondary and tertiary packaging) Standard EN 13430	☐
8	Composting, biodegradationStandard EN 13432	☐
9	Obtain certificates of compliance from the suppliers for all packaging constituents	☐
10	Choose substances less dangerous for the environment in the case of additional constituents	☐
11	Eliminate or limit the use of materials that do not promote recycling or incineration with energy recovery	☐
12	Promote the use of recycled materials	☐
13	Know the percentage of recycled material in the final packaging	☐

For further information, please contact your Packaging department